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THE FULMAR: ITS PAST AND PRESENT DISTRIBUTION IN THE NORTH ATLANTIC AND IN THE NORTHERN PARTS OF EUROPE AND NORTH AMERICA, AND SOME ACCOUNT OF ITS GREAT INCREASE IN GREAT BRITAIN.

By J. A. Harvie-Brown.

(Concluded from p. 388.)

(Plates I. & II.)

Foreword.

Darwin tells us that the Fulmar Petrel is "the most abundant of all Arctic birds." We may rest satisfied, as we fully may, on such an authoritative statement—at least, until such times as better methods of taking a census of bird-life be divulged—say, by cinematograph photography—and so be content—

> "To dream of the womb of the Future,
> Charged with the fulness of Time."

General Dispersal.

There are three causes which appear to have influenced and regulated the dispersal of the Fulmar Petrel and its successive occupation of new nesting sites in recent years, one of which seems to be the most important, and the other two less so and more local in action.

The first of these, the earliest and almost assuredly the really dominating force, has been the rapid increase of their numbers at their more northerly breeding stations, and the natural expansion caused by the congestion in an outward and a southerly direction.

The present writer does not consider it necessary to go far back for evidence of this increase, *i. e.* to consult the evidences adduced by the very earliest Arctic voyagers. For present purposes it seems sufficient to trace the advances from the more important localities in Arctic Seas, and, supplementary to that, those, if any, from our oldest and only previously recorded and much further southern locality of St. Kilda. It is satisfactory to find the existence of this far southern locality, and that we have records dating back for *at least* two hundred and fifty years.*

Another cause has been assigned, *viz.* the comparatively recent development of the Whale fishery, and certainly it seems to be favoured by the evidence of Whale-fishing accounts in the past. Pennant says: "The Whales are often discovered at sea by the multitudes of Mallemucks flying, and that, when one of the former is wounded, prodigious numbers follow its bloody track."

But the present writer may at once say that the influence of that industry does not seem to him to have had any really extensive sway over their dispersal, unless possibly in the very earliest and minor stages of the procedure. It is true that Bear Island, lat. 75° 30′ N. and long. 15° E., is now—A.D. 1911—much more densely populated by these birds than in the earlier times to which I have referred, and this has been credited to the influence exerted by the whaling operations carried on by the Norwegians on the north coast of Finmark. Dr. W. Bruce is of the opinion that these operations *did* have something to do with the increase at Bear Island, as offering an additional inducement to the birds to further colonize the place. While that may appear to be quite within the possibilities, we cannot compare its force with the natural influence exerted by over-

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* 'A Late Voyage to St. Kilda,' &c., by M. Martin Gent (London, &c.), MDCXCVIII. It cannot be affirmed that we have any true and reliable record of the species having bred on the South Isles of Barra of the Outer Hebrides, all endeavours to trace a reliable and scientific relation of this as a fact having failed, though it has been included and quoted as an old-time British nesting haunt. We reserve statistics for later treatment under the several localities, and only use the general fact here to show how suitable cliffs may not have been within the ken of the ocean-loving birds which rarely came near the land except in their nesting season; and, on the other hand, to give a reason for the exception. This we endeavour to explain later when treating more directly of the British dispersal in recent years.

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population at the older centres further away to the north, and the far-reaching impulse of the first outward pressure and ever-gathering force afterwards as each successive colony in turn became overcrowded.

This widespread and more general movement towards the south no doubt became accentuated and doubly enforced when the independent ranges of these "northern hordes" overlapped with that of the long separated and furthest south colonies of St. Kilda. The probable result, if these ranges did overlap, was the mingling of the sexes of both, and renewed vitality. It appears to the writer, and may appeal to the careful student of Dispersal, that whilst the main army, so to express it, advanced rapidly and covered great expanses of ocean between Iceland and other more northern stations, and Bear Island and Faroe, and even further south still, the natural increase of the population of the St. Kilda colonies also caused an overflow of the population, which in its initiatory stages took a northerly direction; and that those which wandered furthest to northward met the south-advancing host, and later became, as it were, overpowered, and ceased to penetrate much further, and thus an added impulse may well have been given to the more general advance. We should explain here that there cannot be any reasonable doubt about the increase of these birds at the St. Kilda group of islands during recent years, as there appears to be abundance of evidence of the fact.

If the dispersal of these and other added colonies did take a northerly trend, and the superior forces met and overcame them, this may present a sufficient explanation of the great rapidity with which so many Scottish stations have been taken up since their earliest advent at Faroe in 1838, and Shetland in 1878.

As regards the still further extensions to the west coast of Ireland, as related by Messrs. R. M. Barrington and Ussher,* that may also have been accelerated by the blending of blood and increased vigour; but, putting that aside, the Irish occupations may well be due to the direct influence of the greater southward general movement which appears to have taken place all over the North Atlantic.

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* 'Irish Naturalist,' September, 1911.

A third cause. How far these causes may have been accelerated by another is more difficult to gauge. But quite in recent years the results of an abnormal loosening of Arctic ice and the far drifting southwards of the caved-off icebergs may perhaps be guessed at by a careful study of the series of the U. S. American Ice-charts. We need not lay too much stress upon the undoubted facts, so well known to those who "go down to the sea in ships," and who cross and recross the North Atlantic between Europe and the continent of America, whether by the "north-about" or the "south-about" routes, but we consider it is worthy of mention as a possible influence. Such natural developments can scarcely fail to produce effects upon the habits and distribution of even such an ocean-loving bird as the Fulmar, though it may not always be easy to define the direct action. And it is worthy further of mention in the connection that such influences upon the migration of Seals has been very distinctly observed upon the Newfoundland coast, and especially in the Sound of Belleisle between Newfoundland and Labrador, and which has been commented upon during at least one year of the last decade, when the Seal fishery usually conducted at the time of the annual migration of these animals northward proved a complete failure; and as we write it may be stated again there has been a failure in the Seal fishery off the Banks for similar reasons in 1911. The further extension of the oceanic dispersal on the western side of the North Atlantic may have been simultaneous with or dependent upon the abnormal southerly drift (or "*migration*") of the Arctic icebergs, which have been shown in recent years to reach southward to 45° N. lat. on the European side, and to 41° or further south on the American side.

Of the oceanic space covered by the flight of the multitudes of these birds—*i. e.* the species of North Atlantic Fulmar Petrel —Linnæus gives early indication, though he did not appear to have been aware of the St. Kilda colony. He simply writes of its general range: "*Habitat in Mari glaciali, s. intra tropicum arcticum, Nidificat in Grönlandia, Spitzberga,*" &c. It is true, however, that Brisson was aware of the St. Kilda colony, and Linnæus quotes the reference and the authority in turn, for Brisson's statement is no doubt simply an adaptation from

Martin Martin's still earlier account, verified by a specimen sent thence to Reaumur's Museum in Paris.*

The range of the species is vast, covering nearly the whole Northern Atlantic, even to the verge of the fixed Polar ice, and as far as the open sea will lead them, or, more definitely, and according to absolute record, as far as 85° 5″ N. lat., as recorded by Collett and Nansen. These writers tell us: "The last *Fulmarus glacialis* of this year was seen on Sept. 14th, and was the last bird observed that autumn. On that day the 'Fram' was in 85° 5″ N., and this is the highest latitude in which birds have ever been known to be observed."†

Southward the species ranges as far as the Mediterranean ('Yarrell,' *loc. cit.*), and, as we have just shown, to 45° N. lat. on the European side, and to 41°, or further south, on the North American side.

We cannot definitely fix what may be the range of individual birds of the species, nor even that of the inhabitants of any one colony, either singly or in a body; but we may be allowed to believe that the range is dependent upon the necessities of the pioneers in the earliest stages of the movement.

The flight of the Fulmar is for the most part low and gliding over the trough and billow, the birds rarely ascending to any marked elevation when far out at sea. Their vision is therefore limited, and their horizon circumscribed. Whilst nearly all previous writers speak of these birds as a purely oceanic species, and record that before the occupation of the later nesting places the birds were seen principally by fishermen out at sea, and some miles removed from the nearest land—as will be gathered further on in this article—such is not to-day so conspicuous a trait in their behaviour, because many are now to be seen quite in more or less land-locked seas, and close round their nesting sites—as, for instance, in the narrow Sound of Sleat, in the waterways of the Outer Hebrides, and the North and South Minches between the Outer Hebrides and the coast of the mainland of Scotland. And it may well be worth mentioning here that a remarkable exception to the rule of previous circumscribed horizon—if failure of the birds to colonize be due to that fact—is that the long-tenanted cliffs of St. Kilda and the high cliffs of Mingulay and Barra Head are clearly within view of one another; but that it has not been till within quite recent years that Fulmar Petrels have colonized the latter. We instance this exception to illustrate the fact that pressure from the over-populated cliffs of the St. Kilda group *did not*—if the chronology can be trusted, which we uphold it can be—*cause great expansion in a southerly direction* from our solitary Fulmar station, or *otherwise it has been long delayed*.

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* 'Ornithologia sive Synopsis Methodica,' &c., MDCCLX. Vol vi. Parisiis, MDCCLX., p. 143, t. 12, f. 2. (The copy now in my possession belonged to the late Prof. Wm. Macgillivray, and bears his beautiful sign-manual upon each illuminated title-page of the six volumes. The text is in double column, in Latin and French, and the full title-pages have two printed strips of paper pasted on, bearing the legend, "Monsieur Challan, Procureur du Roi," on one line, and "A Meulan-sur-Seine.") The passage referred to is at p. 145, and the last sentence of the article, "Il a été envoyé de l'Isle S. Kilda à M. de Reaumur par Milord Morton."

† 'Account of the Birds of the Fram Expedition,' Christiania. London, 1899, p. 50.

Of the great and general abundance of the species it may not be out of place to speak here. This may best be done from the records of previous observers. Thus, twenty thousand to thirty thousand birds are taken annually on the Westmannjar Isles of Iceland.* In the island of Jan Mayen the species breeds in thousands.† After a north-west hurricane the mortality of Fulmars on that inhospitable rock was vast. The birds return to the cliffs at Jan Mayen with every south wind, and as late as September 19th, "nearly as numerously as in summer, but disappeared with every north wind."‡

Another point is, if any real specific difference exists between the more Arctic form and the more abundant southern form, it is here worthy of notice that it is only in autumn or the end of September that the "grey-coloured young" (*sic*) were seen frequenting Jan Mayen.

Following up the argument regarding a great general movement southwards, it may be well to speak here of these two supposed forms or so-called subspecies. Personally, however, the present writer has never been able to obtain a single specimen of the grey-coloured birds in British seas apart from what may have been mere plumage phases dependent on age. These grey birds are spoken of as frequenting Spitzbergen seas in certain proportions to the lighter-coloured birds,* and to inhabit the island of Grimsey within the Arctic Circle, to the north of Iceland, to the exclusion of the other form, and they are even credited as possessing a distinctive local name, *e. g.* "Smidur," or the Hammerman.† Specimens from British seas, however, still seem to be desiderata in collections. Therefore these do not help us greatly in tracing dispersals at present, though they may yet become helpful.‡ It would appear, however, from their much greater scarcity in the south of their range and the isolation or local distribution of nesting sites in the north that the form is probably a disappearing one, and that in all likelihood merely an illustration of dimorphism. But many authors have recorded these peculiar forms. Trevor Battye seemed to find all the birds in the Spitzbergen seas to be what he terms "a dirty light shade." The lightest he obtained is now in the National Museum, "where"—as he says—"it can speak for itself, and"—as he further remarks—"whereas Howard Saunders says both forms are very numerous and the light form breeds in thousands," his (Trevor Battye's) experiences appear to have been somewhat different,§ though not clearly defined by him.

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* Yarrell, 'British Birds,' ed. iv. vol. iv. p. 6.

† "Vogel von Jan Mayen," translation; Zool. 1890 (Jan. and Feb.), by Dr. F. Fischer and August von Pelzeln.

‡ Yarrell (*loc. cit.*).

In the North of Europe the range has not been found to extend eastward of the Kara Sea; at all events, records thence are scarce or negligible.

In Spitzbergen it has long been found in vast numbers (*vide* A. Newton, 'Ibis,' 1865).

In Novaya Zemlya the Fulmar was abundant on the north coasts of the North Island, and was observed at the highest latitudes attained, but was not seen by Markham in the Kara Sea.||

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* Newton, quoting Faber (*cf.* 'Naumannia,' vii. p. 437).

† See also Newton in Appendix to Baring-Gould's 'Iceland,' p. 419. Also Howard Saunders's 'Manual,' 2nd ed., 1899, p. 751.

‡ Yarrell (*loc. cit.*).

§ 'Ibis,' October, 1897.

|| *Idem*, October, 1897; Feilden, *op. cit.* 1870, pp. 303, 310; and Von Heuglin, *op. cit.* 1872, pp. 60–65.

In Franz Josef Land, it was found at Cape Hvitenland, Frederick-Jackson Islands, and breeding at Cape Fisher and the east end of Mabel Island; and nesting on basaltic columns.*

At Waigatz Island, the Fulmar was only seen at sea off Novaya Zemlya, and at Lutke Islands.†

At the coasts of North America, and over the seas of the Western Atlantic, Fulmars were seen off Belleisle on Aug. 20th, and found in increasing numbers northwards both inshore and out at sea. All were seen in autumn. Most were light-coloured. Ludwig Kumlein says‡: "I saw none so dark as I did in the spring." He continues: "A few of these dark-coloured birds—darker than ever I saw in the fall, breeding near Quickstep Harbour in Cumberland"; and this author appears to differentiate them. He adds: "To the northward of Exeter Sound the dark variety predominates." He arrives at the conclusion that, "the dark birds being oftener seen in spring than in fall, the dark plumage cannot be characteristic of the young." So far, Kumlein; and he is recognized as a careful observer.

On the other hand, in another area of sea, Heneage Cox first saw the birds when *en voyage* to Spitzbergen, in the open sea to the north of Norway, on July 24th, and found them becoming more numerous to the northward up to the edge of the ice-pack. The grey birds seen and treated of by him seemed "to be in a state of plumage intermediate between that of the adult and that of the young in the second summer."§ And A. Chapman, when on the same expedition as Heneage Cox, also remarks upon these different appearances of the plumage of individuals in the Spitzbergen seas.

Prof. R. Collett tells us that "the Fulmars are to be seen all down the coast [*i. e.* of Northern Norway] as far as Trondhjeim, but never south of that point, and between August and spring it is not met with there, but it may be found to breed within the Arctic Circle." Collett is more scientific with his "*may be found*" than Wheelwright's looser statement.

In Wheelwright's 'Ten Years in Sweden' occurs the passage, and this was no doubt considered by Prof. R. Collett later, as may be rendered more correctly, and considered more scientifically accurate. The Old Bushman has it thus:—"It [*Procellaria glacialis*] is not seen on the Swedish coast in summer, but occasionally in autumn and winter. Never further south on the Norwegian coast than Trondhjeim. Breeds in the far north in the islands off Norrland and Finland."

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* Eagle Clarke, 'Ibis,' April, 1898, p. 274.

† Pearson, 'Ibis,' 1898.

‡ 'The Howgate Arctic Expedition,' 1877–79, p. 102.

§ *Vide* Yarrell, 3rd ed., p. 642, as quoted by Heneage Cox.

In Greenland, again, it is not found nesting further south than 69° N. lat., but was seen, but not nesting, as far north as 82° 30″ in Grant Land.

So far as we have shown up to this point, the evidence, we think, points to what we have already indicated, *viz.* the principal cause of dispersal and its general direction.

In 1863, Herr Müller published his excellent treatise on the Birds of Faroe,* and, amongst other interesting information, he quotes Mohr in his Icelandic Natural History,† *that it only bred on Grimsey*; but Herr Müller goes on to say: "Now [*i. e.* 1863] it certainly breeds in numbers on the Westmann Islands!" Grimsey is an island off the north coast of Iceland, and lies within the Arctic Circle, whereas the other localities in Iceland for the nesting haunts of the species are all southward of the Arctic Circle. As we have seen (*ante*, p. 407), birds nesting on Grimsey—as related by Prof. Newton—present the *grey form* of plumage to the exclusion of the light form, and was considered sufficiently distinct to receive the local name of "Smidur," or the Smith or Hammerman. But if we credit Mohr, as above quoted by Müller, may this not have been its *only* name then known in Iceland, and not one meant to distinguish between two forms? We mention this as having a possible bearing upon the earlier history of the species and its subsequent dispersal.

The Faroes.

We now come to treat of the next great movement, which resulted in the populating of the Faroes.

First, let us for a short space revert to the earlier writers—Svabo, Landt, Faber, Mohr. These earlier chroniclers have told us of the status of the Fulmar in northern lands and seas prior to the occupation of Faroe, which latter, as will be shown, dates to 1838 or 1839. All these writers have spoken of the almost universal occupancy of these Arctic regions by the species, and they have enlarged upon its extraordinary abundance. Messrs. Baird, Brewer, and Ridgeway considered that Iceland was the most densely populated land of the Fulmars when they wrote, and mentioned four stations. These were (quoting Faber): Grimsey, within the Arctic Circle, Latrabjarg, Krisuvixrberg, and Westmanseyar, where, adds Faber, "they are the commonest of birds."

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* 'Faeroernes Fuglefauna,' Kjobenhavn, 1868.

† 'Icelandske Naturhistorie,' 1786, p. 29: "Bijgger allene paa Gairnsee," p. 29.

Beyond Iceland and Arctic limits, St. Kilda alone has a Fulmar history, which extends back to some two hundred and fifty years.* It might, indeed, well be that a differentiation in plumage should have evolved between these far-separated colonies of Fulmars! Indeed, to some it may appear more extraordinary that such has not resulted, even if they had been previously continuous and united. But that interesting question must now remain, we fear, for ever undiscovered. Is the space of two hundred and fifty years sufficient for Nature to achieve such changes? Perhaps not; but how much longer may the St. Kilda colony have been separated from its nearest kin in the Arctic? Is there not in the facts as they stand another argument in favour of a pure case of dimorphism in the species?

We now take up the accounts in chronological order of the records. According to Mr. John Wolley's early account, it would appear that the earliest colonies occupied portions of Faroe Isles about the year 1838 or 1839, and that the first few pairs were seen to breed at the cliffs of Qualboe in Suderoe; then later in Skuoe and Great Dimon, at which place John Wolley saw their nests in 1849. Even then, or when he wrote in 1850, he expressed his surprise at the remarkable change of locality by a bird supposed to be so constant in its attachment to certain breeding places. This remark of Wolley's has considerable significance when our more recent history of its wanderings is considered, as I think will appear still more evidently as we proceed. For the present it is enough to direct attention to his remark, and to suggest that when he made it he had St. Kilda in his mind as well as the Iceland localities.*

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* Martin Martin, *op. cit.*

Continuing in chronological authors' sequence, we find that the increase of these birds in Faroe has been a fairly steady one, if slow, whichever site was first occupied. Herr Müller gave Colonel Feilden all his information to date of the latter's visit to Faroe, and these and the writings of Wolley and Müller's 'Faeroernes Fuglefauna' were utilized by Colonel Feilden in his notes on the birds of these isles in 1872.† There we find the additional stations occupied, *viz.* Mygganaes, Videroe, and Fugloe, and these Colonel Feilden added from his own observation; and he draws my attention to the fact that Wolley does not *say* that Qualboe (he writes Quelboe) was the first colony of Fulmars, but "somewhere about the year 1839 it was observed by the rock-climbers, *breeding for the first time near Qualboe in Suderoe.*" Feilden adopted Wolley's statement, but Feilden adds: "I do not *say* it was the first colony to arrive in the Faroes" (*in lit.* to the present writer, Jan. 30th, 1912).

Whilst Herr Müller, both in his printed account (*vide ante*) and in his information given to Colonel H. W. Feilden, gives Suderoe as locating their first arrival there, followed by most of the later authorities and supported by Wolley, it is a little puzzling to find that the late Prof. A. Newton, in the tenth edition of the 'Encyclopædia Britannica' (1879), and in his 'Dictionary' (1893), credits Mygganaes Holm—the furthest western island of the Faroes—as receiving the earliest pioneers, and the statement reappears in the eleventh edition of the 'Encyclopædia Britannica,' as revised by Dr. Chalmers Mitchell without alteration (1910). The passage is as follows: "Northward it established itself about 1838 on Mygganaes Holm—one of the Faroes." Perhaps later on, and chronologically, this may come to be explained. It may be said, however, in this place that, whilst Newton's statement is contrary to previous writers, and is therefore somewhat puzzling, it is also worthy of note, by careful readers of the Norsk and possible (?) alternative translations, that some reason may be found for it, *more especially* as

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* "Some Observations on the Birds of the Faroe Isles" (Jardine's 'Contributions to Ornithology' for 1850).

† "The Birds of the Faroe Islands" ('Zoologist,' 1872).

Newton gives no authority. Newton had a correspondent or correspondents in Faroe, and he knew Herr Müller.

I give the passage which I find in Herr Müller's MS., written by him up to date of 1894, when he gave it to Harvie-Brown at Thorshavn :—

"Det forste Sted hvor den satte siq fast var paa den Westlige side, Nordliqst paa Sudero."

"The first place where it settled was on the western side, towards the north of Sudero."

There is no doubt about the word "*Westlige side*"—towards ! the north of Sideroe, or rather the superlative of towards = "nordward*st* of Sideroe," says the translator of the passage. Can any misconception of the passage have occurred to confuse this with Mygganaes? Does anything occur in the Danish to lead to the conception that "on the western side" refers to the entire group of the Faroes, and that further it may read the superlative "nordward*st*" *from Sideroe.* If not, it must remain a puzzle how Mygganaes Holm has been credited as the locality of its first occupier, on Newton's authority. Yet Mygganaes Holm does appears to be more likely than Suderoerne !

Colonel Feilden, in correspondence with Harvie-Brown during the preparation of this paper, says: "I am perfectly satisfied and convinced that Newton had good reason for giving Mygganaes as the first Fulmar settlement in these islands"; and Feilden further adds a remark with which, I think, all will agree, as the present writer does: "My reason," says Feilden (*in lit.* as above), "for accepting his statement is that his veneration for John Wolley was so great that never would he have put aside the latter's statements unless he had an absolute basis of fact to go by." And I am glad to find also that Feilden perfectly agrees with the present writer in that; as he puts it: "It seems almost a certainty that the Atlantic roaming Fulmar would adopt the isolated western and almost inaccessible Mygganaes (holm) for its first settlement, and not the more protected and inland site of Qualboe."

Though the following information is not strictly chronological, we think it advisable to give it here, as having some direct connection with what has preceded it.

When Harvie-Brown was in the yacht 'Daydream,' and that vessel was on her return voyage and laying a course for Kirkwall (Orkneys), he had occasion to meet and converse with a native of Mygganaes of the Faroes—a Captain Andresen—who was working his passage to Scotland in connection with his own business in Faroe, *i.e.* owner of several fishing and trading craft there. He was going to Scotland to endeavour to purchase a steam-vessel, with which he proposed to run the mails amongst the islands.* Amongst much other interesting matter relating to both the Faroes and Rockall, he made mention of a presumably earlier occupation of Mygganaes Holm, spoken of by the people of the island within his [Andresen's] recollection, and then of a subsequent decrease and disappearance thence, and an increase again later, and of their having spread to many other parts of the cliffs. "The Fulmars," he said, "came in numbers, but became soon afterwards rare at Mygganaes; but again returned and became quite abundant." Harvie-Brown put Capt. Andresen's age at about thirty-five, but now believes that to have been a not very accurate estimate. Andresen lived at his home at Mygganaes, and remembered hearing of the above when he was a lad of about ten years of age. Mr. Andresen (we quote from Harvie-Brown's journals), "who is certainly a man well worthy of credence and altogether a superior and able man, speaking but not reading nor writing English fluently," gave Harvie-Brown these particulars, along with much other interesting information, apart from the subject of this paper. Though the above items alone may not be exact enough to prove a fact, yet, taken in conjunction with others, we think them worthy of admission here.

The present writer had the pleasure of sailing among these interesting islands in the summer of 1894. The Fulmars were met with in fair abundance during the cruise, but more plentifully on the south coasts of the northern group than on the great walls of cliff to the west of Eide Fjord, on the north coast. We may here quote a few passages from Harvie-Brown's diary of 1894. Relating to the north coasts, we find :—

"Fulmars are evidently nesting on these high cliffs, as I saw many sailing high in air above the highest cliff-edges and along the cliff-faces. . . ." Again : "Yes ; Fulmars do breed on the grassy slopes high up in these northern headlands. . . . A few years ago only two or three pairs did so, but of late years more have come, and since Herr Grön began his whale-fishing operations at Eide Fjord they have become very (*i. e.* comparatively) abundant inside the fjord, and close up to the harbour or landing-stage. This means a considerable extension of range, and may point to a direct cause; just as at Foula (Shetland) a great stranded whale was said to have first influenced the birds to take up quarters at the Kaim of that island (see further on). A few years before Herr Grön's advent they were not known to come inside the 'jaws' of the fjord. A great increase may now be looked for." And, again: "All along the south cliffs near Soorvaag and Midevaag, and close to the towering precipices, 'Mollymauks' were flying, but we noticed that the cliffs here do not rise in successive or in parallel ledges as almost invariably is the case in our Scottish nurseries; rather are they honeycombed by cavities, holding at most a few pairs of birds, or even single nesting pairs. Thus the colonies are more scattered and not massed together. The cliffs are amygdaloid, with bands of basalt, with studded crystals of scolecite;* and the cliffs visited by the yacht's gig on June 30th literally overhung our boat, and may have been some 1700 ft. in sheer height. (The Malin Head at Eide, on the north coast, is over 2800 ft. in height, and some comparatively lesser stacks along its base are 1000 ft. in altitude.) It is only at close quarters that one can realize the vastness of their height, or the bird population. At a distance of even half a mile only a few places show white from the deposit of the birds' guano. Nowhere did we see any bird colonies to compare in density with many of our Scottish nurseries, unless it was at Mygganaes. For many miles of cliff-face there is scarcely a symptom of bird-life, and it is not even at quite close quarters that it is always easy to understand why they should be so unoccupied.

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* *Vide* 'Trans. Royal Irish Academy.'

"Harvie-Brown's party had no opportunity of close acquaintance with the south isles of their earlier habitations in Suderoe, Storre, and Lille Dimon. Finally, in the list of birds seen in Faroe, we find it summed up: Fulmar Petrels—old and young—

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* Auct. Prof. Heddle, who accompanied Harvie-Brown, and who had also previous personal acquaintance with Faroe.

were seen half-way between Shetland and Faroe. Afterwards abundantly all along the coasts of Osteroe, Stomoe, Vagoe, and Mygganaes; also along the coasts of the latter—Vagoe and the south of Mygganaes—close in to the shore, flying often very high and far above the altitudes of the highest cliffs, just as we have seen them do at St. Kilda, Handa, and elsewhere. To the east of Eide Fjord, and between the entrance to the fjord and Kalsoe Fjord, or between Kodelin and Malin Head, only a few pairs bred until of late years, when a decided increase in their numbers took place. Since the whale industry has been instituted—*i. e.* in June, 1894—by Herr Grön, the Fulmars have increased, and have come into the Eide Fjord at the time of the 'flensing.' At Soorvaag's Fjord village we saw eggs, and bought two, just as a reminiscence. These were taken a little to the north of the entrance of that fjord on the Vagoe side."

When we saw Herr H. C. Müller at Thorshavn, whom we had known for many years, he told us of the "vast" increase in their numbers—*i. e.* by 1894—and the MS. he gave us at that time had been brought up to date of that year.

A Chronological Note of the Occupation of Faroe by the Fulmar.

We give a list of the writers whose works we have consulted, and a few others whom they quote—such as Svabo and Winge, &c. :—

1598.—Martin Martin.
1676.—Debes.
1760.—Brisson; Svabo.
1766.—Linné, 12th ed. We do not quote Linné's 10th ed., but his 'Editio Duodecima Reformata.' Linné does not mention the Fulmar in his unreformed ed. 10 (1758).
1786.—Mohr.
1799.—Landt.
1845.—Winge. Four birds seen at Great Dimon.
1850.—John Wolley.
1860.—Herr H. C. Müller. Seen at Mygganaes, and at Troldhovet ('Faeroernes Fuglefauna,' 1868).
1862.—Herr H. C. Müller. MS. *to date*, given to Colonel H. W. Feilden.

1872.—Colonel H. W. Feilden. Seen at Videroe and Mygganaes.
1879.—A. Newton, 'Encyclopædia Britannica.'
1893.—A. Newton, 'A Dictionary of Birds.'
1894.—Harvie-Brown, MS. Journals. Herr H. C. Müller, MS. *to date*, given to Harvie-Brown at Thorshavn.

Before treating of the dispersal in the British Isles,* it seems desirable to ask: How far has direct pressure influenced the extension southwards to Shetland, the rest of Scotland, and to the west coast of Ireland? How far has St. Kilda influenced the rest of Scotland and the west coast of Ireland? Or has any such influence, exerted by increase of the population in Faroe and in St. Kilda (and all subsequent occupancies in Britain), been simply merged in one vast movement from the original habitation (or habitations?) within and around the Arctic Circle? And if such a great pressure outward has taken place, whether purely from congested areas or from climatic alterations and food-supplies and other circumstances favourable or unfavourable to the healthy existence of the species—whither has the direction of the wave of pressure come—from the north and west, or from the north and east, or up from the ocean as from west to east?

We may not be able to satisfactorily answer questions such as these, but at least they may give some interest to future inquirers. It does appear known that their way is blocked to them east of the Kara Sea by the ice which, off the North Asiatic coast, leaves but a narrow lane of open water, and that for but a short time—and *not always even that*—in the short Arctic summer. It may, at all events, be conceived that many, or most or all, of the suitable haunts in the north-east *are congested by long years of almost unchecked increase*, and that only by the partially artificial actions of man in his whaling operations is their food supply maintained at a "living wage" level.

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* A further extension of this paper in so far as it relates to Great Britain "has appeared" in 'The Scottish Naturalist,' new series, vol. i. (*i. e.* to date of May, 1912, and June, 1912).—Ed.

SOME MISCELLANEOUS NOTES FROM GREAT YARMOUTH.

By A. H. Patterson.

It was suggested to me some time ago by Mr. J. H. Gurney, whose "Norfolk Notes" have become an institution in this Journal, that I should send my own direct to the 'Zoologist'; and I do so with the assurance that they will detract nothing from the interest attached to his annual contribution.

The past year has not been marked by any great ornithological or other event in this neighbourhood; and the abnormally unpleasant month of August—my month of leisure—saw but scant entries in my notebooks.

Many hundreds of Dunlins came to Breydon during the first week in January. Wind south-east to north; whilst "bad" weather drove crowds of wildfowl south. On the 17th, on a cruel east wind, thousands of various ducks must have passed along the roadstead. I saw a flock of quite sixty Brent Geese; finding the remains of an Oystercatcher and a Gannet washed up at the tide-mark. On the 20th many of the stalls in the Saturday's market were decorated with various fowl. The Broads had been visited by considerable numbers; Mr. Vincent, writing from Hickling, stated that he had seen several thousand Wigeon and about five hundred Pochards, Tufted Ducks, and Scaups. He saw fifty Sheld-Ducks on one morning, with eleven Goosanders, two immature Black-throated Divers, one Red-throated Diver, two Smews, and several Golden-Eyes. Many species of waders passed; and he had never seen so many Jack-Snipe in January before. A day or so before five Long-tailed Ducks had been seen. Several Pink-footed Geese, driven from the well-known Wash herd, were seen in East Norfolk; two having been exposed for sale in the market that had been killed at Palling. Oystercatchers were unusually numerous.

Writing from Sheringham, Mr. W. A. Smith, on the 21st, testified to the hordes of duck working south on the strong east wind. He recorded, among others, a Green Sandpiper, a Temminck's Stint, and a Little Auk, taken during the bad weather.

During the scouring tides of the middle of January I saw many Radiated Trough Shells (*Mactra stultorum*) washed up at the harbour mouth; and considerable quantities of Whelks were thrown up on the Gorleston side. Huge quantities of coarse brown Wracks were flung ashore also.

On January 24th a person living in one of the oldest streets produced for my inspection three House-mice which had been trapped. There were white, floury-looking, fungus-like growths on their heads; in one instance the eye and part of the head seemed to have been eaten away. Subsequently I had two or three others shown me. The "affliction" answered to the description of "favus," a parasitic fungus known as *Achorion schœnteinii*, a conviction confirmed by one or two medical gentlemen to whom I sent specimens. The county analyst succinctly remarked that "cats play with these mice and pass the disease on to their human playmates," a possibility I was afraid of; and I, in consequence, impressed upon the mother of the household to keep her youngsters away from contact with any traps or dead mice, advice that proved not unnecessary, when, later on, she assured me that among some kittens born not long after, one of them was already afflicted by the disease, and was destroyed. Since then the "breed" appears to have been exterminated. A local doctor, with knowledge of slum-life in Edinburgh, assured me he had seen cases in human beings where the disease had obtained a hold not easily or quickly eradicated.

On January 24th a local gunner out with a shoulder gun on Breydon water saw a large bird crouching in a stranded fish-basket; on kicking it over, the bird—a Bittern—flew out, and was promptly killed, an infraction of the Norfolk Protection Act that passed unheeded.

Several Little Auks came in with the advent of February. One caught alive was brought to me on the 2nd. Another was captured at Upton, near Acle, and unsuccessfully persuaded to feed on turnips by its captor.

Rooks were flocking to their nesting trees in the centre of Yarmouth within sight of the market-place, as early as February 18th; on the same date a flock of Jackdaws had taken up their quarters in the parish church steeple.

Bearded Tits were noticed in an extensive patch of reeds on the Waveney early in March, a few miles from Yarmouth. I have every reason to believe that some nested there, and am assured that in years gone by a colony was not unknown on the Waveney. It is to be hoped that protective measures will be afforded this characteristic Broadland bird.

Early in March a Hoopoe alighted in a tired condition on the 'Hasbro' light-vessel, and was captured by one of the men, who tried to induce it to feed upon snips of beef. It however succumbed, and was hopelessly spoiled in an endeavour to preserve the skin.

On March 27th what looked very like a migration of Rooks and Stock-Doves took place; wind strong from the north-west. The former beat inshore as if afraid of being blown to sea, or they may have been wing-weary.

A Bar-tailed Godwit, on April 14th, passed overhead at night, Breydonwards, calling loudly.

On May 5th I saw two Spoonbills on Breydon, one an undoubtedly fine male, with a crest like a mop. About a score of Godwits, backward in colour, a number of Whimbrel, and five Shovellers made a pleasing variety on the mud-flats. A Whimbrel will tackle a Shore-Crab (*Carcinus mœnus*) much too large to be swallowed. It shakes off all the legs, which it then picks up and devours, and should the carapace prove unnegotiable, it will pick the softer under-part to pieces and eat the inside. Many Herons were dotted around eel-catching.

A third Spoonbill had joined the other two on the 9th, apparently another male. He did not seem to be made welcome by his rival in the affections of the lady bird.

May the 11th saw a variety of shore-birds on the mud-flats, many Ringed Plovers and Dunlins; several richly attired Grey Plovers were noted in a flock of eleven.

The only "show" of *Tipula* (daddy longlegs) was noted on May 14th, when numbers flew from the grasses as I brushed along the crest of the "walls." The usual enormous numbers seen in September were conspicuously absent this year, probably owing to the heavy storms of August, when the marshes were inundated by the deluge, the larvæ assuredly having been drowned.

On June 5th three Spoonbills (undoubtedly those from Breydon) had been seen at Easton Broad, near Southwold, by the Rev. Julian Tuck. These birds evidently come and go, for they are seen a day or two, then lost sight of, and once again return; and if unmolested will spend the best part of the summer in and around the neighbourhood.

On June 9th I saw nine Shovelers on the mud-flats, in all probability feeding on the *Hydrobiidæ* found abundantly on the blades of the *Zostera*.

That a Starfish will produce curious results on a cat that may have eaten one, I well know; but I was unaware that blowflies found *Asteriadæ* deadly until having placed three or four Sun-stars (*Solaster papposa*) on the top of a hen-house to dry in the sun, the aroma drew together a goodly crowd of flies both of the blue and green coloration. They ravenously clung to them, and seemed loth to move. My young Japanese silky chickens as eagerly snapped up many flies. I observed that the flies soon began to show signs of apathy, and tumbled about in the same manner that they will do on having come in contact with Keating's powder. Before long dead flies besprinkled the neighbourhood, and I began to fear for my chickens, which, however, came to no harm.

A Red-backed Shrike was observed in an adjoining village early in June to make several visits to a certain field, carrying away a young Partridge on each occasion. It was shot when bearing away its fifth victim.

A Squacco Heron, which will most likely be recorded in Mr. Gurney's "Notes," was obtained in the neighbourhood in June.

For many years the Swifts to the number of ten pairs annually resorted to the eaves of an ancient house near the Town Hall Quay. In July, when all the nests would be occupied, a length of wire-netting was stretched along the eaves of the house, in order to protect a new advertising board from their droppings. For days the wretched parents hung around their old time home, and eventually dispersed; some to find new lodgings, which I sincerely hope they will occupy next spring.

In July a Shrike captured a Shrew, impaling it on a thorn, the spike penetrating the skull.

Goldfinches were delightfully plentiful this year in villages south of the town.

July 21st I saw hundreds of Black-headed Gulls, young and old, on a Bure-side marsh, their first appearance in the neighbourhood after nesting.

Saw one Spoonbill in Breydon on July 13th, and two on the 23rd.

On August 12th about one hundred and twenty Swifts had gathered in the vicinity of the St. George's Park, a favourite assembling ground for small birds, and were seen to go away in a body due south-east. Two or three hundred Curlews on Breydon, on August 16th.

I saw, on August 18th, a nice flock of Turnstones on the Breydon flats, near my house-boat. They invariably ran down the wind, now and then with very ruffled feathers; then suddenly turning, they would work back, pushing the prostrate *Zostera* with bill and forehead until it looked rough-ploughed, the weed being piled in heaps almost as high as the birds. In the soft ooze thus uncovered any crustaceans seen were promptly snapped up. Many Redshanks and Ringed Plovers consorted with them, occasionally benefiting by the labours of their stouter companions. This is the only observation I have thought worth recording for the whole of my summer holidays!

During the gloomy September I frequently observed hungry Swallows flying up and down in front of bill-posting stations, snapping at the blue-bottle flies that had gathered here and there to enjoy such little warmth as obtained in a southerly aspect, probably quite as much attracted by the paste kept damp by frequent showers. On one occasion a bird flitted between myself and the hoarding, snapping up a fly disturbed by my coming. On the 14th, when I was walking along Breydon "walls" to my house-boat, these birds flicked round and round me, deftly capturing the dipterous insects brushed out of the grass as I walked. I put out some *Tipulæ*, but never saw one of them taken by these birds.

Some hundreds of Dunlins and Ringed Plovers, with some Curlew-Sandpipers, on the mud-flats. Some Grey Plovers and a few score Knots. During the continuance of the waters upon the marshes, flocks of Grey Plovers, Lapwings, and Golden Plovers were frequenting the neighbourhood, the drowned worms probably being an attraction.

I picked up a freshly-dead Redwing at the tide-mark on the beach on October 3rd, and on the 4th a dead migrant Skylark, with its wing clean cut off by contact with a telegraph wire on the North Denes.

On the 3rd a Woodcock with an injured wing, hurt undoubtedly by telegraph wires, was captured near the fish wharf.

Two Ruddy Sheld-Ducks were shot on Breydon on October 5th by two separate gunners, one of whom, not knowing its species, and mistaking it for an ordinary Sheld-Duck, plucked it, the head, neck and feet only being rescued at the instance of a gentleman who happened to see it. I saw the remains; the head was creamy, but the neck had assumed a decided shade of buff. The other fell to a collector, who had it preserved.

Gulls, I think, are becoming more numerous. Three years ago I estimated the numbers "resting" on Breydon flats, after an early morning's feeding at the herring grounds, at about seven thousand; on certain days lately I have estimated the number at nearly half as many again. Greater Black-backed Gulls of all ages appear to predominate; Black-headed Gulls came next, with Herring-Gulls, mostly immature, and then the Common Gull, in lesser numbers. No one troubles to shoot them, save one old gunner of my acquaintance, who looks every year to make up a gross of victims, utilizing the feathers for sale purposes, whilst he dresses the wings and "parts" of smaller Gulls, finding quite a *clientèle* among certain of the fair sex, who recommend his wares one to another. There will be a hue and cry directly by the fisher-folk, who seem unaware, or forget that the Greater Black-back is exempt from protection.

It is a fine and interesting sight on a fine afternoon just before sunset to see the ruddy light falling upon acres of birds; to hear them cackling their plans for the night's procedure; and to observe them mounting, battalion after battalion, in regular succession, and making for the open sea, whereon in fine nights they roost, to be in readiness for the morning's chance—to annoy the fisher-folk hauling their nets by snatching at herrings as they come up filled. Fishermen tell me that they actually shake fish out of the nets and devour them, a lot of Gannets and Cormorants assisting from below. I have found the skulls of Cormorants washed up on occasion, and believe them to be the remains of birds that had been entangled in the nets below and drowned.

In the early morning it is curious to see the boats vigorously steaming home, a huge parcel of Gulls, like a swarm of bees, flying above and around, squabbling and scrambling for the broken fish and useless species thrown back into the sea by the men when clearing the nets. They will follow a boat to the harbour, and wheeling suddenly in a body they will make back for an approaching vessel. One may, with a good pair of glasses, observe the boats miles away, surrounded by a swarm of birds; each home-coming vessel being escorted. The birds evidently know the full boats, probably seeing the fish; but never do they make an error by accompanying an outgoing craft.

A live Shag, half dead from bad usage, maybe half drowned by contact with a net, was brought to me on the 8th of October.

The Black Rat is still abundant in the slummier parts of the town, having runs under the floors of the huddled-up conglomerate of cottages, warehouses, and outbuildings, which characterize the "Rows." Walls of huge thickness, but of doubtful consistency, are often riddled with burrows, and all attempts at extermination seem futile. The Rats are impudently tame, and will show themselves in broad daylight; migrating, as food fails them, from fish-house to cottage, and from cottage to sail-loft, just where food happens to be most accessible at the time, whilst grocers' warehouses afford them happy hunting-grounds. Cats weary of killing them, and after a time refuse to eat, even if willing to hunt and capture them. Several houses have recently had their floors taken up and a solid under layer of concrete put in before replacing the boards.

NOTES AND QUERIES.

MAMMALIA.

Rabbits and their Young.—During the past spring I kept under observation several nesting-burrows of Rabbits containing young. I marked these sealed holes each day in such a way that I could detect any visit by the mother to its young. For many nights, both moonlight and otherwise, I visited these burrows, but found in every instance up till midnight the mother had not attempted to visit her young. On April 4th I took three nests under observation, and decided to watch the night through, visiting the nests at three-hour intervals. At midnight all the holes were still undisturbed. At 3 a.m. one had been opened and sealed again, the second was open, and I presume the mother was in the act of feeding her young; the third nest had not been visited. At 6 a.m. both the latter had been resealed. It is evident only one visit is paid by the old Rabbit to its young in twenty-four hours. Although these facts may at first seem contrary to what we might expect—that the mother would visit her young as soon as possible after dark—nevertheless, by delaying her visit, the Rabbit no doubt avoids many dangers to both herself and young by running less risks from her enemies, which would be more eager hunting their prey as soon as night falls.—J. STEELE ELLIOTT (Dowles Manor, Shropshire).

AVES.

Starling on Sheep's Back.—To see Starlings perch upon Sheeps' backs is something I have been accustomed to all my life, the first thirty years of which were spent at Eastbourne, where, on the neighbouring downs, one could not very well miss the sight. Jackdaws do the same. In the district in which I now live—one of the wooded and enclosed portions of the county of Sussex—I still see the same habit followed out, though to a lesser degree, because the sheep are fewer, and the great flocks of Starlings such as frequent the open downs and levels of the county are absent. Indeed, I saw two Starlings on the back of a sheep this morning. There is one fact we must not lose sight of—all sheep do not have the same wool. I would rather reckon on seeing a Starling on the back of a "Southdown" than on that of a "Kent"; in fact, I do not know that a Starling has ever been seen by me on the back of any other than a Southdown sheep. It would be interesting to learn from readers of 'The Zoologist' to what extent the practice is followed in those localities where the sheep are mostly of breeds producing long and coarse wools. It is not so often that I see a Starling on the back of a cow or bullock—indeed, one might say seldom—but possibly in the future this will have become quite a common sight, provided the Starling continues to increase in enclosed districts at the same rate that it has done during the past twenty-five years. Both the Starling and the Jackdaw will sometimes alight upon the back of a deer; it is not very unusual to see them on the backs of the fallow-deer in the Hon. H. B. Portman's park at Buxted, in Sussex.—Robert Morris (Uckfield, Sussex).

Some Notes on the Carrion-Crow (Corvus corone).—Throughout Somerset the Carrion-Crow is a common resident species, and nests may be found yearly in any part of the county, but it breeds most commonly over the lower portions of the county, the moorlands and central flood areas, getting scarcer when the Mendips are reached. Being an extremely wary bird, it holds its own well, in spite of the persecution it receives at the hands of the farmers and gamekeepers, who, when they can manage it, shoot them mercilessly, whether in the breeding-time or not, by reason of the havoc they commit with the eggs and young of poultry; one farmer assured me that a Crow carried off the eggs from under a hen which was sitting in his yard, so throughout the countryside they are detested as much as Sparrow-Hawks wherever the poultry-yard exists. My experience of the nesting of this species shows that a pair of birds, or perhaps in time their descendants, will return year after year to the same spot, and build a new nest each season in the same or an adjacent tree, until six or more old nests, or portions of them, may be counted. On certain parts of the moorlands they utilize the low birch and alder trees for nesting purposes, the nests being reached without much climbing; another favourite site is the thick top of a fir tree. In these quiet and out-of-the-way spots of the moorlands they get little molestation from the gunner, and breed abundantly and in comparative safety. The nest, when placed in the thin top of an alder tree, is a bulky structure, but small when placed in the fork of a lateral branch of an elm, a favourite nesting tree on the higher ground around Wells, but here the commonest position for the nest is a *central* fork from twenty to fifty feet up. The usual nesting materials employed are sticks, twigs, moss, hair, and wool; one nest last year was partly composed of pieces of paper picked up from the rubbish on the Wells Sewage Farm, a distance of about three hundred yards from the nesting tree. It is difficult to approach the sitting bird within easy gunshot; it could be accomplished by stealth, but not, I should say, by openly walking across a meadow to the nest, especially when incubation is not advanced. These observations refer to the latter part of March and early part of April, when the trees are destitute of foliage, and the fact of the bird always leaving the nest when I was well away from it enabled me to notice a common habit of the female on her quitting the nest. Immediately on leaving she hops or jumps down, as it were, on extended wings a good yard or more before sailing off with laboured flight across the meadow, to watch from a near tree what is going to take place. She does not leave the nest in the same way as a Magpie does or a Ring-Plover, by flying straight away at the same altitude or higher. I say "she," because I am of opinion that the female alone performs the task of incubation. I have watched the same bird that left the nest return to it again, the other bird being the while in an opposite tree. The full complement of eggs I have found to be commonly five, occasionally four, and rarely six. Sometimes one egg differs from the rest of the set, and resembles very much the Jackdaw type. I have known only one instance of an unspotted egg, one of a set of five. If two or three eggs are taken, the remaining eggs to make up the set are, as a rule, deposited within a few days, and incubation proceeds with two or three eggs, as the case may be. I have not found a full clutch laid again in the same nest, and if a nest be robbed of its full complement it is forsaken. Large birds are not allowed in the nesting tree. Rooks especially are driven away, and chased some distance off with angry cries, the Crow returning immediately to its tree. I have noticed this happens when the nest is being built as well as when it contains eggs.—STANLEY LEWIS (Wells, Somerset).

Increase of Land-Rail (Crex pratensis).—Has the Corn-Crake been more common generally as a nesting species during the present year, or only partially so? In Somerset it seems to have been more plentiful (*ante*, p. 316), and in Bedfordshire and Buckinghamshire, whence my personal observations have been made, it has nested again in many localities which it had deserted for many years past.—J. STEELE ELLIOTT (Dowles Manor, Shropshire).

Baillon's Crake in Yorkshire.—While walking a marsh bordering the River Wiske at East Harlsey, near Northallerton, a small Crake rose from the rushes before me, and flew slowly and with apparent difficulty a few feet above the herbage. I shot it, and found it to be a Baillon's Spotted Crake (*Porzana bailloni*). On dissection it proved to be a female, and is an immature bird. Measurements:—Length, 7·9 in.; wing, 3·75 in.; tarsus, 1·12 in.; mid-toe, 1·52 in. It was very fat. Several Snipe had been feeding in its immediate vicinity; in fact, I shot one of these birds, which rose a few feet from the Crake. This is the fourth example of this species to be obtained in Yorkshire, the last of the previous occurrences being an adult male, killed between Pocklington and Wilberfoss (Mr. T. H. Nelson, 'Birds of Yorkshire'). Unfortunately, my specimen fell into the none too gentle "hands" of the fox-terrier at Harlsey Hall, where I was then staying, but was luckily rescued while something yet remained. I have, however, managed to preserve all that was possible of it.—J. M. Charlton (Brampton, Cumberland).

Strange Nesting-site of Coot (Fulica atra). — Frequently when Coot have a difficulty to find cover for their nest they will build in quite open situations, even on the bare edge of the water within a foot or so of the land. But with a nest that came under my observation on Southill Pool, Bedfordshire, on June 15th last, no such difficulty of abundant cover occurred, and yet this pair had chosen to build their nest partly on the rowlock and partly on the seat of a half-submerged punt alongside the lake dam, and at a considerable distance from any cover whatever. The nest contained a clutch of six eggs, which were considerably incubated.—J. Steele Elliott (Dowles Manor, Shropshire).

Abnormal Clutch of Great Crested Grebe (Podicipes cristatus) in Glamorgan.—On April 20th we visited a lake, in South Glamorganshire, where we had observed a pair of Great Crested Grebes during the winter months, and now hoped that they had commenced nesting. As we approached, we saw one of the birds sitting on its nest, which was situated in a small clump of reeds forming the only suitable cover on the lake. On our nearer approach the bird left the nest, after partially covering the eggs, some of which could be seen from the bank, a distance of thirty yards, and on wading out to the nest we were surprised to find that it contained nine eggs, four or five being the usual clutch. Whilst endeavouring to photograph the nest the female continually dived within ten yards of the camera, but her mate kept to the open water. Unfortunately, the photograph was not wholly successful, the depth of water and the treacherous nature of the bottom of the lake not allowing the camera to be placed far enough from the nest. Later in the season the same pair of birds laid clutches of five and four, which were not reared in safety. The nesting of this bird in Glamorganshire is an unusual occurrence, and it is peculiar to note that this abnormal clutch was laid in a county where the bird does not habitually breed.—F. Norton and J. Delhanty (126, Queen Street, Cardiff).

Eggs of Great Crested Grebe (*Podicipes cristatus*).

Fulmar (Fulmarus glacialis) in Suffolk.—On October 10th, while walking along the beach at Pakefield, just south of Lowestoft, I found a Fulmar on the shore, exhausted but still alive. It is one of the light-coloured form, and probably a bird of the year. The Fulmar is by no means a common visitor to East Anglia. Mr. Patterson records one in this Journal (Zool. 1907, p. 388), also found near Lowestoft, but in this case a dead bird. — Julian G. Tuck (Tostock Rectory, Bury St. Edmunds).

Birds and Butterflies in the Alpes-Maritimes.—On the early hot days of September, 1911, *Papilio podalirius* was frequently seen flying and occasionally alighting in a garden in the west of Mentone. During this summer of 1912 I have not seen it at all in Mentone, but I saw it lately on Mount Bellenda, on the Italian side of the frontier, in company with *P. machaon*. Both were there numerous. Starlings on a southward flight were seen in large numbers in the tops of the planes which line the Avenue Félix Faure, on Nov. 26th and Dec. 18th, 1911. They remained for a few days and disappeared. In the beginning of January, 1912, I chanced to see a large stuffed Owl (*Bubo ignavus*) in a house at Sainte-Agnès; it had been killed in the vicinity. This and a dead owl of smaller size nailed to the wall of an outbuilding in Moulinet are the only Owls I have seen in the district. Other birds seen only in the carcase were Song-Thrushes and Redwings, about the middle and end of February. The wild purple anemone was in flower on Dec. 25th, 1911, but the red did not appear until the end of February in 1912, and at about the same time Nightingales came into song, and Chaffinches were singing freely. When the Nightingale alights upon the ground it jerks its tail up and down repeatedly. One of the commonest of spring birds in the gardens of Mentone is the Willow-Warbler, which utters a frequent and not unmelodious strain. Carrion-Crows I saw near Laghet in May. There were five in company. I saw these birds also every day during three weeks at Peira Cava (about 4800 ft.) in July and August. One large solitary Blackbird—it looked larger than the Crows—was seen there also; I could not be certain that it was a Raven. I first saw fireflies at Mentone on June 3rd, and every night thereafter during June and the first week of July at Mentone, Sospel, and Moulinet (about 3000 ft.), but at Peira Cava I saw none. Blackbirds were plentiful near Sospel and at Moulinet in June, and I had a momentary glimpse of a Blackcap near Sospel, and of a Kingfisher near Moulinet. At the latter place a Cuckoo began calling very early—at 3 a.m. one morning—and there also I saw a Rock-Dove, which flew out of a clump of Spanish chestnuts to the east of Bévéra, and alighted on a tree in the open part of the valley. A few days later—on June 29th—as I was sitting on a rock by the side of the Bévéra immediately below the Pont de Mouravi, a Water-Ouzel perched on an adjacent rock, and eyed me curiously for some seconds. Near the same spot, where grow magnificent fronds of *Scolopendrium vulgare*, I saw Blackbirds, Wrens, and a Robin. Siskins were common amongst the pines at Peira Cava, and I saw there also the Greater Tit. There also was a small bird with a bluish-grey back, which ascended the boles of the pines swiftly in a perpendicular course. I could not ascertain what it was, but I think it must have been a Nuthatch.

Butterflies abounded at all the places I have mentioned, and chiefly so at Moulinet and Peira Cava. At the former place blue *Lycænidæ* were to be seen in dozens at one time. I also saw there *Aporia cratægi*, and at Peira Cava, *Hipparchia proserpina* and many others. On Aug. 20th Cicadas were stridulating amongst the olive trees on the Pointe de Saint Hospice, near Villefranche, and on the 25th of that month, on the road which leads from St. Laurent to Eze. On the previous day I saw *Vanessa antiopa* at Mentone; it frequently alighted, and enabled me to see the elaborate and beautiful markings of the under side of the wings. Next day, between Eze and St. Laurent, I saw *Colias edusa*.—James R. McClymont (Mentone, Alpes-Maritimes, France).

A Correction.—In the Addenda et Corrigenda of my paper, "Birds of South-east Northumberland" (*ante*, p. 301), I stated that Mr. George Bolam had misrepresented my remarks on the Chiffchaff in his book, 'Birds of Northumberland and the Eastern Borders.' I have since discovered that his statement does not refer to my own paper at all, as I would have seen had I noticed that he gives his reference, 'Zoologist,' 1906, p. 27. I deeply regret making such a blunder.—J. M. Charlton (Brampton, Cumberland).

I should be most grateful if any readers of 'The Zoologist' would give me any information at all about Wiltshire Birds, records of rare birds in the county, or of the nesting of uncommon birds, &c.; in fact, any record not mentioned in the Rev. A. C. Smith's book, 'The Birds of Wiltshire.'—G. Bathurst Hony, M.B.O.U. (Woodborough, Pewsey, Wilts).

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, DUNDEE, 1912.

ADDRESS TO THE ZOOLOGICAL SECTION.

By P. Chalmers Mitchell, D.Sc., F.R.S., *President of the Section.*

Zoological Gardens and the Preservation of Fauna.

(Concluded from p. 398.)

And now I come to the last side of my subject, that of Zoological Gardens, with which I have been specially connected in the last ten years. My friend M. Gustave Loisel, in his recently issued monumental 'Histoire des Ménageries,' has shown that in the oldest civilisations of which we have record, thousands of years before the Christian Era, wild animals were kept in captivity. He is inclined to trace the origin of the custom to a kind of totemism. Amongst the ancient Egyptians, for instance, besides the bull and the serpent, baboons, hippopotami, cats, lions, wolves, ichneumons, shrews, wild goats and wild sheep, and of lower animals, crocodiles, various fishes and beetles were held sacred in different towns. These animals were protected, and even the involuntary killing of any of them was punished by the death of the slayer, but besides this general protection, the priests selected individuals which they recognised by infallible signs as being the divine animals, and tamed, guarded, and fed in the sacred buildings, whilst the revenues derived from certain tracts of land were set apart for their support. The Egyptians were also famous hunters, and kept and tamed various wild animals, including cheetahs, striped hyænas, leopards, and even lions, which they used in stalking their prey. The tame lions were sometimes clipped, as in ancient Assyria, and used both in the chase and in war. The rich Egyptians of Memphis had large parks in which they kept not only the domestic animals we now know, but troops of gazelles, antelopes, and cranes, which were certainly tame, and were herded by keepers with wands. So also in China at least fifteen centuries before our era, wild animals were captured in the far north by the orders of the Emperor, and were kept in the Royal Parks. A few centuries later the Emperor Wen-Wang established a zoological collection between Pekin and Nankin, his design being partly educational, as it was called the Park of Intelligence. In the valley of the Euphrates, centuries before the time of Moses, there were lists of sacred animals, and records of the keeping in captivity of apes, elephants, rhinoceroses, camels and dromedaries, gazelles and antelopes, and it may well be that the legend of the Garden of Eden is a memory of the Royal Menagerie of some ancient king. The Greeks, whose richest men had none of the wealth of the Egyptians or of the princes of the East, do not appear to have kept many wild animals, but the magnates of imperial Rome captured large numbers of leopards, lions, bears, elephants, antelopes, giraffes, camels, rhinoceroses and hippopotami, and ostriches and crocodiles, and kept them in captivity, partly for use in the arena, and partly as a display of the pomp and power of wealth. In later times royal persons and territorial nobles frequently kept menageries of wild animals, aviaries and aquaria, but all of these have long since vanished.

Thus, although the taste for keeping wild animals in captivity dates from the remotest antiquity, all the modern collections are of comparatively recent origin, the oldest being the Imperial Menagerie of the palace of Schönbrunn, Vienna, which was founded about 1752, whilst some of the most important are only a few years old. These existing collections are of two kinds. A few are the private property of wealthy landowners, and their public importance is due partly to the opportunity they have afforded for experiments in acclimatisation on an extensive scale, and still more to the refuge they have given to the relics of decaying species. The European bison is one of the best known cases of such preservation, but a still more extraordinary instance is that of Père David's deer, a curious and isolated type which was known only in captivity in the Imperial Parks of China. The last examples in China were killed in the Boxer war, and the species would be absolutely extinct but for the small herd maintained by the Duke of Bedford at Woburn Abbey. In 1909 this herd consisted of only twenty-eight individuals; it now numbers sixty-seven. The second and best known types of collections of living animals are in the public Zoological Gardens and Parks maintained by Societies, private companies, States, and municipalities. There are now more than a hundred of these in existence, of which twenty-eight are in the United States, twenty in the German Empire, five in England, one in Ireland, and none in Scotland. But perhaps I may be allowed to say how much I hope that the efforts of the Zoological Society of Scotland will be successful, and that before many months are over there will be a Zoological Park in the capital of Scotland. There is no reason of situation or of climate which can be urged against it. The smoke and fog of London are much more baleful to animals than the east winds of Edinburgh. The Gardens of North Germany and the excellent institution at Copenhagen have to endure winters much more severe than those of lowland Scotland, whilst the Arctic winter and tropical summer of New York form a peculiarly unfortunate combination, and none the less the Bronx Park at New York is one of the most delightful menageries in existence. The Zoological Society of Scotland will have the great advantage of beginning where other institutions have left off; it will be able to profit by the experience and avoid the mistakes of others. The Zoological Society of London would welcome the establishment of a Menagerie in Scotland, for scientific and practical reasons. As I am speaking in Scotland, I may mention two of the practical reasons. The first is that in Great Britain we labour under a serious disadvantage as compared with Germany with regard to the importation of rare animals. When a dealer in the tropics has rare animals to dispose of, he must send them to the best market, for dealing in wild animals is a risky branch of commerce. If he send them to this country, there are very few possible buyers, and it often happens that he is unable to find a purchaser. If he send them to Germany, one or other of the twenty Gardens is almost certain to absorb them, and failing Germany, Belgium and Holland are near at hand. Were there twenty prosperous Zoological Gardens in Great Britain, they could be better stocked, at cheaper rates, than those we have now. The second practical reason is that it is a great advantage to menageries to have easy opportunities of lending and exchanging animals; for it often happens that as a result of successful breeding or of gifts on the one hand, or of deaths on the other, a particular institution is overstocked with one species or deficient in another.

One of the ideas strongly in the minds of those who founded the earlier of the modern Zoological Gardens was the introduction and acclimatisation of exotic animals that might have an economic value. It is curious how completely this idea has been abandoned and how infertile it has proved. The living world would seem to offer an almost unlimited range of creatures which might be turned to the profit of man and as domesticated animals supply some of his wants. And yet I do not know of any important addition to domesticated animals since the remotest antiquity. A few birds for the coverts, fancy water-fowl for ponds and lakes, and brightly plumaged birds for cages or for aviaries have been introduced, chiefly through zoological societies, but we must seek other reasons for their existence than these exiguous gains.

Menageries are useful in the first place as educational institutions, in the widest sense of the word. Every new generation should have an opportunity of seeing the wonder and variety of animated nature, and of learning something that they cannot acquire from books or pictures or lectures about the chief types of wild animals. For that reason Zoological Gardens should be associated in some form with elementary and secondary education. We in London admit the children from elementary schools on five mornings in the week at the nominal charge of a penny for each child, and in cooperation with the Educational Committee of the London County Council, we conduct courses of lectures and demonstrations for the teachers who will afterwards bring their children to visit the Gardens.

Menageries provide one of the best schools for students of art, for nowhere else than amongst living animals are to be found such strange fantasies of colour, such play of light on contour and surface, such intricate and beautiful harmonies of function and structure. To encourage art the London Society allows students of recognised schools of drawing and painting, modelling and designing, to use the Gardens at nominal rates.

Menageries provide a rich material for the anatomist, histologist, physiologist, parasitologist, and pathologist. It is surprising to note how many of the animals used by Lamarck and Cuvier, Johannes Müller and Wiedersheim, Owen and Huxley, were obtained from Zoological Gardens. At all the more important Gardens increasing use is being made of the material for the older purposes of anatomical research, and for the newer purposes of pathology and physiology.

There remains the fundamental reason for the existence of Menageries, that they are collections of living animals, and therefore an essential material for the study of zoology. Systematic zoology, comparative anatomy, and even morphology, the latter the most fascinating of all the attempts of the human intellect to recreate nature within the categories of the human mind, have their reason and their justification in the existence of living animals under conditions in which we can observe them. And this leads me to a remark which ought to be a truism, but which, unfortunately, is still far from being a truism. The essential difference between a zoological museum and a menagerie is that in the latter the animals are alive. The former takes its value from its completeness, from the number of rare species of which it has examples, and from the extent to which its collections are properly classified and arranged. The value of a menagerie is not its zoological completeness, not the number of rare animals that at any moment it may contain, not even the extent to which it is duly labelled and systematically arranged, but the success with which it displays its inhabitants as living creatures under conditions in which they can exercise at least some of their vital activities.

The old ideal of a long series of dens or cages in which representatives of kindred species could mope opposite their labels is surely but slowly disappearing. It is a museum arrangement, and not an arrangement for living animals. The old ideal by which the energy and the funds of a Menagerie were devoted in the first place to obtaining species "new to the collection" or "new to science" is surely but slowly disappearing. It is the instinct of a collector, the craving of a systematist, but is misplaced in those who have the charge of living animals. Certainly we like to have many species, to have rare species, and even to have new species represented in our Menageries. But what we are learning to like most of all is to have the examples of the species we possess, whether these be new or old, housed in such a way that they can live long, and live happily, and live under conditions in which their natural habits, instincts, movements, and routine of life can be studied by the naturalist and enjoyed by the lover of animals.

Slowly the new conditions are creeping in, most slowly in the older institutions hampered by lack of space, cumbered with old and costly buildings, oppressed by the habits of long years and the traditions established by men who none the less are justly famous in the history of zoological science. Space, open air, scrupulous attention to hygiene and diet, the provision of some attempt at natural environment are receiving attention that they have never received before. You will see the signs of the change in Washington and New York, in London and Berlin, in Antwerp and Rotterdam, and in all the Gardens of Germany. It was begun simultaneously, or at least independently, in many places, and under the inspiration of many men. It is, I think, part of a general process in which civilised man is replacing the old hard curiosity about nature by an attempt at sympathetic comprehension. We no longer think of ourselves as alien from the rest of nature, using our lordship over it for our own advantage; we recognise ourselves as part of nature, and by acknowledging our kinship we are on the surest road to an intelligent mastery. But I must mention one name, that of Carl Hagenbeck, of Hamburg, to be held in high honour by all zoologists and naturalists, although he was not the pioneer, for the open-air treatment and rational display of wild animals in captivity were being begun in many parts of the world while the Thier-Park at Stellingen was still a suburban waste. He has brought a reckless enthusiasm, a vast practical knowledge and a sympathetic imagination to bear on the treatment of living animals, and it would be equally ungenerous and foolish to fail to recognise the widespread and beneficent influence of his example.

However we improve the older menageries, and however numerous and well-arranged the new menageries may be, they must always fall short of the conditions of nature, and here I find another reason for the making of zoological sanctuaries throughout the world. If these be devised for the preservation of animals, not merely for the recuperation of game, if they be kept sacred from gun or rifle, they will become the real Zoological Gardens of the future, in which our children and our children's children will have the opportunity of studying wild animals under natural conditions. I myself have so great a belief in the capacity of wild animals for learning to have confidence in man, or rather for losing the fear of him that they have been forced to acquire, that I think that man, innocent of the intent to kill, will be able to penetrate fearlessly into the sanctuaries, with camera and note-book and field-glass. In any event, all that the guardians of the future will have to do will be to reverse the conditions of our existing menageries, and to provide secure enclosures for the visitors instead of for the animals.

I must end as I began this Address by pleading the urgency of the questions I have been submitting to you as an excuse for diverting your attention to a branch of zoology which is alien from the ordinary avocations of most zoologists, but which none the less is entitled to their fullest support. Again let me say to you that I do not wish to appeal to sentiment; I am of the old school, and, believing that animals are subject and inferior to man, I set no limits to human usufruct of the animal kingdom. But we are zoologists here, and zoology is the science of the living thing. We must use all avenues to knowledge of life, studying the range of form in systematic museums, form itself in laboratories, and the living animal in sanctuaries and menageries. And we must keep all avenues to knowledge open for our successors, as we cannot guess what questions they may have to put to nature.

NOTICES OF NEW BOOKS.

The Teratology of Fishes. By **James F. Gemmill**, M.A., M.D., &c. Glasgow: James Maclehose & Sons.

We are told in the Introduction that the primary object of this publication is to "throw light on the structural aspect of the major abnormalities occurring in fishes, particularly in the trout and salmon," and few will deny that "the study of monstrosities among fishes merits a distinct and important place in the biological field."

Among monstrosities some may be described as "spontaneous or autogenetic." Malformations are also capable of being produced by environmental factors acting during the course of development. Those arising in this manner "may be termed acquired, and there is no evidence that they are transmissible," and Dr. Gemmill considers it quite possible that "for some types the instances of *acquired* may outnumber those of *autogenetic* abnormality." These two groups tend to coincide with one another, but in any case "*the fact that a particular abnormality appears spontaneously is an argument for, and not against, the probability that the same abnormality can be artificially produced. The converse proposition carries with it an even stronger degree of likelihood.*"

The Introduction is followed by a bibliography—"Literature relating to the Teratology of Fishes"—which contains two hundred and seventy-six references, and its compiler modestly hopes "that the lists may not show greater defects than are pardonable in a first bibliography on a wide and scattered subject." This catalogue will receive a warm welcome by students, and we are glad to see that the pages of 'The Zoologist' have contributed a small item in the bibliography. We may hope in the future that our Journal may provide more material for these records.

The bulk of the volume is of a more technical nature, and will well repay the study of the biologist and evolutionary scholar. It is excellently illustrated, has a good index, and we are glad to read that the "Trustees of the Carnegie Bequest" have made possible the publication of the work in its present form.

The Marine Mammals in the Anatomical Museum of the University of Edinburgh. By Sir Wm. Turner, K.C.B., D.C.L., &c. Macmillan & Co., Lim.

We read in the Preface to this well-illustrated and descriptive Catalogue that, so far as these mammals are considered, the Anatomical Museum of Edinburgh, in the number and variety of species, ranks after the British Museum and the Museum of the Royal College of Surgeons, and is believed to be third in the United Kingdom in the number of specimens of Cetacea and Pinnipedia which it contains. But in species of Cetacea frequenting Scottish waters it is larger and more complete than either of those two important collections.

The Introduction contains a full account of the conditions under which bones of prehistoric Whales have been found on the east and west coasts of Scotland, some of these remains belonging to Whales of great dimensions. In the classification Sir Wm. Flower's Catalogue of the Specimens in the British Museum, 1885, has been taken as the Guide, with the principal exception of cataloguing all the Baleen Whales in a single family—*Balænidæ*, which are by Sir Wm. Turner divided into two families, *Balænidæ* and *Balænopteridæ*. The illustrations are full and ample, and have been again made possible by a financial grant of the Executive Committee of the Carnegie Trust.

This book is more than an ordinary Museum Catalogue, and is of great anatomical value.

British Plant-galls; a Classified Textbook of Cecidology. By E. W. Swanton. Methuen & Co., Lim.

This volume describes the galls arising in plant-tissues through the presence of parasitic insects, &c., and fungi, and of which the well-known "oak-apple" is a good example. As the author clearly states: "A plant-gall may be defined as abnormal growth induced by the irritation of an animal or fungus parasite," but "to term the parasite a 'gall-maker,' as many writers have done, is to convey an utterly erroneous idea of its function. It makes nothing, but induces much." The biological chapters are clearly informative, and are supplemented by coloured illustrations—both botanical and entomological—which will be valued by those students of entomology and botany who seek economic knowledge. A classified and descriptive catalogue of British galls brings the subject well up to date, and the bibliography is practically complete, so far as the English language is concerned.

Of the Rhyncotal family *Tingididæ*, Mr. Swanton only refers to two species of the genus *Copium*, which "deform the flowers of *Teucrium chamædrys* and *T. montanum* on the Continent, but I am not aware of their occurrence in Britain." In 'The Zoologist' (1910, p. 395) another Tingid (*Stephanitis rhododendri*) was figured and described as infesting rhododendrons at Fulham, and since then reports have been received of its undesirable presence on rhododendrons in other parts of the country.

The author, Mr. Swanton, is Curator of the Educational Museum at Haslemere, and Sir Jonathan Hutchinson, who is practically the mainstay of that excellent institution, contributes an introduction to the volume.

The Humble-bee; its Life-history and how to Domesticate it, with Descriptions of all the British Species of Bombus and Psithyrus. By F. W. L. Sladen. Macmillan & Co., Lim.

This is a very welcome contribution to our books on British entomology, and is outside the field of compilation, though happily not exclusive of the work of our best authorities. Seventeen species of *Bombus* are well described and figured; these include the reinstatement as species of *B. lucorum*, *B. ruderatus*, and *B. distinguendus*, previously recognized as distinct by Smith, but not by some later authorities. Of the parasitic genus *Psithyrus*, which is not only inimical to, but also so superficially resembles *Bombus*, six species are enumerated. The coloured figures of the species comprised in these genera have reached the highest point in artistic realization and technical adequacy. The chapter devoted to the "Domestication of the Humble-bee" is thoroughly practical, and the result of the writer's personal experience.

Under "Anecdotes and Notes," Mr. Sladen has described some interesting observations, the result of a method which in ornithology is known as "bird watching," and which in modern entomology has reached its highest development in the writings of Fabre, Wheeler, McCook, Forel, the Peckhams, and other patient and skilled observers. The book also contains some good advice on the subject of "making a collection."

EDITORIAL GLEANINGS.

We are indebted to the 'Fishing Gazette' of October 12th for these interesting extracts from the 'Scotsman':—

Technical Terms for an "Assembly" of Birds.—"I have compiled the following list of technical terms, each applicable to an assembly of a particular species of birds, and should be glad to obtain additions:—A covey of grouse and a pack of grouse; a nid of pheasants; a bevy of quail; a herd of swans; a skein of geese (when on wing); a gaggle of geese (when on water); a team of wild ducks (when flying); a paddling of wild ducks (when on water); a lord of mallards; a company of widgeon; a rush of dunbirds; a spring of teal; a bunch of teal; a dopping of sheldrakes; a covert of coots; a herd of curlews; a sedge of herons; a congregation of plovers; a desert of lapwings; a walk of snipes; a whisp of snipes; a fling of oxbirds; a hill of ruffs; a muster of peacocks; a flight of doves; a building of rooks; a herd of cranes. The last three I have taken from the following passage in Washington Irving:—'There appeared to be an unusual number of peacocks about the place, and I was making some remarks upon what I termed a flock of them, that were basking under a sunny wall, when I was gently corrected in my phraseology by Master Simon, who told me that, according to the most ancient and approved treatise on hunting, I should say a muster of peacocks. "In the same way," added he, with a slight air of pedantry, "we say a flight of doves, a bevy of quails, a herd of cranes, or a building of rooks."'—A. B., in 'Scotsman,' Sept. 14th, 1912."

"Sir,—In your to-day's "Nature Notes," A. B. states that he would be glad to obtain additions to his list of technical terms for an 'assembly' of birds. Here are a few:—A bevy of quail, a cast of hawks, a trip of dottrel, a wisp of snipe, a flight of doves or swallows, a plump of wild-fowl, a watch of nightingales, a clattering of choughs. Should not, may I ask your correspondent, a sedge of herons be a siege, a congregation of plovers a stand, and a nid of pheasants a nide? As I am writing, may I be permitted to add a few technical terms in regard to animals—namely, a skuik of foxes, a sounder of hogs (wild boars), a troop of monkeys, a pride of lions, a sleuth of bears, and a gang of elk.—I am, &c., Charles E. Roche, 71, Leamington Terrace, Edinburgh ('Scotsman,' Sept. 16th, 1912)."

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